

June 14, 2005

Mr. Ronald A. Jones  
Vice President, Oconee Site  
Duke Energy Corporation  
7800 Rochester Highway  
Seneca, SC 29672

SUBJECT: INSERVICE INSPECTION PROGRAM REQUEST FOR RELIEF  
NO. 04-ON-015, IMPRACTICALITY TO INSPECT DUE TO DESIGN,  
OCONEE NUCLEAR STATION, UNITS 1, 2, AND 3 (TAC NOS. MC5485,  
MC5486, AND MC5487)

Dear Mr. Jones:

By letter dated December 21, 2004, you submitted for Oconee Nuclear Station, Units 1, 2, and 3 Request for Relief (RR) No. 04-ON-015. RR No. 04-ON-015 requests relief from certain American Society of Mechanical Engineers Boiler and Pressure Vessel Code (Code) Section XI requirements.

The enclosed Safety Evaluation concludes that compliance with the Code would result in a significant burden and that the alternative testing and monitoring provides adequate assurance of the continued structural integrity of the components; therefore, RR No. 04-ON-015 is acceptable pursuant to 10 CFR 50.55a(g)(6)(i) for the fourth 10-year inservice inspection interval.

Sincerely,

*/RA/*

Evangelos C. Marinos, Section Chief, Section 1  
Project Directorate II  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket Nos. 50-269, 50-270, and 50-287

Enclosure: As stated

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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

INSERVICE INSPECTION PROGRAM

REQUEST FOR RELIEF NO. 04-ON-015

OCONEE NUCLEAR STATION, UNITS 1, 2, AND 3

DUKE ENERGY CORPORATION

DOCKET NOS. 50-269, 50-270, AND 50-287

1.0 INTRODUCTION

The Inservice Inspection (ISI) of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (Code) Class 1, Class 2, and Class 3 components is to be performed in accordance with Section XI of the ASME Code and applicable edition and addenda as required by Title 10 of the *Code of Federal Regulations* (10 CFR)

Section 50.55a(g), except where specific relief has been granted by the Commission pursuant to 10 CFR 50.55a(g)(6)(i). 10 CFR 50.55a(a)(3) states in part that alternatives to the requirements of paragraph (g) may be used, when authorized by the Nuclear Regulatory Commission (NRC), if the licensee demonstrates that: (i) the proposed alternatives would provide an acceptable level of quality and safety, or (ii) compliance with the specified requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

Pursuant to 10 CFR 50.55a(g)(4), ASME Code Class 1, 2, and 3 components (including supports) will meet the requirements, except the design and access provisions and the preservice examination requirements, set forth in the ASME Code, Section XI, "Rules for Inservice Inspection [ISI] of Nuclear Power Plant Components," to the extent practical within the limitations of design, geometry, and materials of construction of the components. The regulations require that inservice examination of components and system pressure tests conducted during the first 10-year interval and subsequent intervals comply with the requirements in the latest edition and addenda of Section XI of the ASME Code incorporated by reference in 10 CFR 50.55a(b) 12 months prior to the start of the 120-month interval, subject to the limitations and modifications listed therein. The ISI Code of record for Oconee Nuclear Station (ONS), Units 1, 2, and 3 for the fourth 10-year ISI interval is the 1998 Edition of the Code through the 2000 Addenda.

By letter dated December 21, 2004 (Agencywide Document Access and Management System, Accession No. ML043630370), Duke Energy Corporation (the licensee) submitted Request for Relief No. 04-ON-015 for ONS, which requested relief from the volumetric examination coverage requirements for examination category B-D welds, inside radius sections on heat exchanger nozzle-to-shell welds.

## 2.0 REGULATORY EVALUATION

10 CFR 50.55a(g)(5)(iii), requires that, if the licensee has determined that conformance with certain Code requirements is impractical for its facility, the licensee shall notify the Commission and submit information to support the determinations.

10 CFR 50.55a(g)(5)(iv), requires that where an examination requirement by the Code or Addenda is determined to be impractical by the licensee, and is not included in the revised ISI program as permitted by paragraph (g)(4) of this section, the basis for this determination must be demonstrated to the satisfaction of the Commission not later than 12 months after the expiration of the initial 120-month period of operation from the start of facility commercial operation and each subsequent 120-month period of operation during which the examination is determined to be impractical.

10 CFR 50.55a(g)(6)(i) states in part that the Commission will evaluate determinations, under paragraph (g)(5) of this section, that Code requirements are impractical. The Commission may grant such relief and may impose such alternative requirements as it determines is authorized by law.

## 3.0 TECHNICAL EVALUATION

### 3.1 Code Requirements for which Relief is Requested

Table IWB-2500-1, Category B-D, Item B3.160, Volumetric Examination of inside radius sections on heat exchanger nozzle to shell welds.

### 3.2 Licensee's Proposed Alternative to Code

None proposed or planned

### 3.3 Licensee's Basis for Relief

Pursuant to 10 CFR 50.55a(g)(5)(iii), the licensee stated that it has been unable to perform a meaningful volumetric examination because the design prevents the ultrasound from reaching the area of interest. The weld joint geometry, which is essentially a branch connection arrangement using a set-on nozzle, where the nozzle thickness prevents access to the examination volume. The licensee stated that in order to scan all of the required volume, the Letdown Cooler nozzles would have to be redesigned to allow scanning of the inner radius. The configuration for the nozzle inside -radius sections is the same for all three units.

### 3.4 Evaluation

The 1998 Edition of ASME Code Section XI through the 2000 Addenda, Table IWB-2500-1, Code Category B-D, Item No. B3.160, and Figure IWB-2500-7, requires a volumetric examination of heat exchanger nozzle inside radius sections, once during the 10-year interval.

The NRC staff reviewed the configuration in Attachment A of the submittal that the licensee indicated is consistent between all three units. The NRC staff agrees with the licensee's

conclusion that to obtain the Code-required coverage a design change would be required. To obtain the required coverage would require a design modification that would be a significant burden on the licensee. This conclusion is consistent with the conclusion in the NRC staff's Safety Evaluation dated November 11, 1995, for relief request ONS-009, Item B3.160.

In its submittal, the licensee indicated that the weld adjacent to the inside radius section is ultrasonically examined as required by ASME Section XI, Table IWB-2500-1, Examination Category B-D, Item Number B3.150. The licensee indicated that this location is more critical than the inner-radius location and will provide adequate assurance of the integrity of the welded connection.

The licensee will also be using Code-required system pressure testing and a VT-2 visual examination to assure component integrity each refueling outage per the requirements under Table IWB-2500-1, Examination Category B-P, Item Number B15.40. The licensee indicated that this testing would provide reasonable assurance of weld/component integrity. The licensee indicated that if leakage should occur during operation, leakage from these inside radius sections would be detected by monitoring of the Reactor Coolant System (RCS) inventory, which is performed once each shift under unit specific procedure PT/1,2, or 3/A/0600/1 0, "RCS Leakage". This RCS leakage monitoring is a requirement of Technical Specification (TS) 3.4.13, "Reactor Coolant System Leakage". Any leakage is also evaluated in accordance with this TS. The leakage could also be detected through several other methods. One is the reactor building air particulate monitor. This monitor is sensitive to low leak rates; the iodine monitor, gaseous monitor and area monitor are capable of detecting any fission products in the coolant and make these monitors sensitive to coolant leakage. A second is the level indicator in the reactor building normal sump. A third is a loss of level in the letdown storage tank.

Based on the above discussion, the NRC staff considers it impractical to comply with the examination requirements for the subject components and that the licensee's alternative to perform VT-2 examinations while monitoring with system leakage and gaseous monitoring systems during operation provides reasonable assurance of the structural integrity of the subject welds for ONS.

The components specific to ONS include the following:

Oconee Unit 1

<u>ID Number</u>	<u>Item Number</u>
1-51A-18792-1-V-2	B03.160.001
1-51A-18792-1-V-6	B03.160.002
1-51A-1-53755-V1	B03.160.003
1-51A-1-53755-V2	B03.160.004

Oconee Unit 2

<u>ID Number</u>	<u>Item Number</u>
2-LDCA-IN-V1	B03.160.001
2-LDCA-OUT-V2	B03.160.002
2-LDCB-IN-V1	B03.160.003
2-LDCB-OUT-V2	B03.160.004

Oconee Unit 3

<u>ID Number</u>	<u>Item Number</u>
3-LDCA-IN-V2	B03.160.001
3-LDCA-OUT-V5	B03.160.002
3-LDCB-IN-V1	B03.160.003
3-LDCB-OUT-V2	B03.160.004

#### 4.0 CONCLUSION

The NRC staff concludes that requiring the licensee to perform a design modification to obtain ASME-required coverage would result in a significant burden and that the alternative testing and monitoring performed provides adequate assurance of the continued structural integrity of the components. Therefore, relief is granted pursuant to 10 CFR 50.55a(g)(6)(i) for the fourth ISI interval for Request for Relief No. 04-ON-015 for ONS, Units 1, 2, and 3.

This grant of relief is authorized by law and will not endanger life or property or the common defense and security and is otherwise in the public interest giving due consideration to the burden upon the licensee that could result if the requirements were imposed on the facility. All other ASME Code, Section XI requirements for which relief was not specifically requested and approved in this relief request remain applicable, including third party review by the Authorized Nuclear Inservice Inspector.

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Date: June 14, 2005

Oconee Nuclear Station, Units 1, 2, and 3

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